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ABSTRACT

A selective view of recent major areas of research into school processes related to language outcomes supports the contention of the Bullock Report and of many educational theorists who say that there is no one best way to improve language and literacy, but that schools and school variables can and do make differences. The research that is reviewed reflects the variations of research into processes and outcomes, and is comprised of (1) integrative studies of school processes and educational outcomes, (2) studies of language learners and language processes, and (3) selected studies relating to individual variables, such as teacher behavior and student achievement. The reported findings suggest that the greatest amount of language development occurs when teaching styles and classroom situations actively engage pupils in using language for purposes that the students see as meaningful. The reviewed research also tends to support the position that in the achievement of language development and basic literacy teachers must rely more heavily than usual on the active, cooperative participation of the child. This implies that the successful teacher uses thought-provoking questions during instruction and challenges students at their levels of ability while providing a great deal of success and positive reinforcement, particularly to the less able student in the lower grades. (RL)

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RECENT RESEARCH RE LANGUAGE LEARNING AND CLASSROOM PROCESSES

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#162

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INTRODUCTION

At its meeting of September 14, 1981, the School Programs Committee considered a report from the officials concerning grammar and writing. The committee also asked for a number of reports from the Director of Education on related matters including the request:

> that the Research Department in conjunction with the Curriculum and Program Division report to the School Programs Committee on the existing, recent research examining the relationship of educational processes with educational outcomes in English-speaking countries which would have relevance for English language program delivery in the Toronto Board of Education. Educational processes would be taken to mean such conditions as teaching style, class size, choice of curriculum materials, school organization, classroom organization and their inter-relationships. Educational outcomes would be taken in general to mean pupil achievement and progress in English language skills.
>
> (Report #81 - 123)

In order to provide as broad a range of information as possible within the scheduled time, arrangements were made for Bryant Fillion, Associate Professor of Curriculum in the Ontario Institute for Studies in Education, to work with the Chief Educational Research Officer in the preparation of this report. With the assistance of the reference section of the library, various literature searches were undertaken for appropriate material.

The trustee's question addresses the problem of what we ought to be doing to improve language development and speaks of "recent research". The primary focus of the search has therefore been directed to material dating from

1975. In that year the Bullock Report, A Language for Life, effectively summarized the bulk of research and theory relating to language development and instruction to that time. A summary of key Bullock conclusions and their relationship to subsequent research are included in the final section of this report. The request also suggests that studies which were integrative (which attempted to take many variables into account simultaneously) should receive primary consideration.

VARIATIONS OF RESEARCH INTO PROCESSES AND OUTCOMES

Virtually all educational research has as its ultimate goal the improvement or measurement of educational outcomes--pupil achievement and progress--and much of this research has been devoted to language-related outcomes, especially in reading and writing. However, the methods and emphases of such research have varied considerably. One traditional line of research, now virtually abandoned as unproductive, was the search for personal characteristics of "good" or "effective" teachers.

Today there are three major lines of applied research, each supported in varying degrees by more basic research related to the nature and processes of language learning, teaching, and development.

One of these research approaches, especially favored in England, involves extensive observation, description, and interpretation of existing school situations and practices, and the student outcomes associated with them. Intended to increase understanding of school influences on students, and to identify important characteristics of "best practice", these studies typically investigate the effects of many variables operating together, usually focussing on classroom variables such as teachers' attitudes or patterns of behavior (teaching styles), rather than on such hard-to-change factors as building-size, or schools' financial resources. Several such studies are discussed in this report: the Fifteen Thousand Hours study (Rutter, 1979), indicating that

secondary school variables do indeed influence students' achievement and progress; the ORACLE research (Simon, Galton, Willcocks, et al, 1980 and 1981) suggesting how various teaching styles in primary schools influence pupils' progress and performance; the Extending Beginning Reading study (Southgate, et al, 1981) which identifies school process variables associated with reading development of students aged 7 to 9+; and the Lunzer-Gardner study, The Effective Use of Reading (1979), investigating the relationship of reading to learning in English secondary schools. The importance of using observational strategies to understand teaching cannot be ignored. In their review of studies about the accuracy of teacher reports on their classroom behavior, Hook and Rosenshine (1979) conclude that, "in practice, one is not advised to accept teacher reports of specific behaviors as particularly accurate. No slur is intended; teachers do not have practice in estimating their behavior and then checking against actual performance."

A second major line of research, combining experimentation and observation, has been directed at student behaviors associated with progress and achievement. What is it that proficient language users know and do that less proficient students do not? Especially in the last decade, this research has been greatly influenced by cognitive psychology and directed to the identification of mental operations--"cognitive strategies"--that lead to greater achievement and may perhaps be influenced by some form of instruction. Included in this research are recent

developmental studies, such as those by Graves (1978) on children's writing and Wells et al (1981) on children's language development in the home and school.

A third research approach has been to experiment with various methods, materials, and environments intended to improve progress and achievement. Such studies, very common in North America, usually focus on a small number of variables and typically attempt to bring about particular outcomes, such as improved reading test scores, by changing the environment or instruction in some way. Controlled experimental studies provide the usual means of determining whether or not particular educational processes actually lead to specific desired outcomes. In the United States there has been an annual summary of research investigations relating to reading, for many years published under the auspices of the International Reading Association. Weintraub et al (1981) edited the most recent one. The introduction refers to the recent dramatic increase in the number of published reports: 103 in 1960; 236 in 1965; 341 in 1970; 558 in 1975 and approximately 1,200 in 1980! The editors suggest that this reflects an increase in all kinds of research, both good quality and poor quality, and explore some of the possible reasons for this. The table of contents which lists the headings under which the research items have been collected is reproduced as an Appendix to suggest the variety of topics. However, perhaps because they deal with isolated factors rather than with the complexities of complete situations, the findings of such studies have tended to be somewhat inconclusive and have had

limited effects on general practice. The findings derived from various reviews of such research are also considered in this report.

If restricted to school variables "proven" by research to yield improved language development, this report would be brief indeed. Despite the combined weight of theory and generally supportive research, there are very few replicated experimental studies that establish firm causal links between particular school factors, such as teaching methods and styles, and student outcomes. That is, although the studies cited here produced findings that are consistent with recent theories and are often interpreted by the researchers as supporting those theories, observational studies do not in themselves establish causality; the combined presence of two sets of variables does not establish that one necessarily leads to the other. As the Rutter (1979) study cautions repeatedly, particular school processes--such as the use of homework and other measures of academic emphasis-- may be interpreted either as responses to or as influences on the "outcome" factors of pupils' behavior and academic skill shown to be associated with them. This report will look at what seem to be the key, recent relevant major studies. Some additional studies will be cited although most of the more modest research projects were not included in this brief document.

Consistent with the purposes of this report, the following review of particular studies emphasizes those educational processes which (1) have been shown to have a high probability of positively influencing students'

language development and performance, and (2) are "alterable variables". Bloom (1980) characterizes "alterable variables" as those factors which can be controlled or managed, as opposed to those which are essentially beyond our control.

INTEGRATIVE STUDIES OF SCHOOL PROCESSES AND EDUCATIONAL OUTCOMES

There are relatively few large scale integrative studies partly because they tend to be lengthy and expensive. Even when such studies are mounted they usually have a particular focus. If the focus is language there may be little examination of some of the variables suggested in the request; whereas if the focus of the study is on the educational process and the school environment, language outcomes may be given limited attention and not fully assessed.

Fifteen Thousand Hours: Secondary Schools and their Effects on Children (Rutter et al, 1979), reports an intensive study of twelve inner-city secondary schools in London, England, attempting to account for marked differences among the schools in pupils' attendance, school behavior, performance on public examinations, and delinquency. Although the study does not deal specifically with language outcomes, these would be reflected to some extent in examination performance. The research findings are of interest here for two reasons. First, the study offers very strong evidence that schools themselves have a marked influence on pupils' behavior and examination performance, that "children were more likely to show good behavior and good scholastic attainments if they attended some schools than if they attended others" (p. 178), and these differences are not simply the result of the children's background and prior schooling. Such findings lend support to efforts such as this to identify school

variables that influence particular outcomes such as language development.

A second point of interest here is that the differences in outcomes in Fifteen Thousand Hours were associated with factors "open to modification by the staff", rather than factors such as school size, age of buildings, or administrative organization, that are often fixed by external constraints. Positive outcomes were associated with "the degree of academic emphasis, teacher actions in lessons, the availability of incentives and rewards, good conditions for pupils, and the extent to which children were able to take responsibility" (p. 178). Furthermore, the fact that "the cumulative effect of these various social factors was greater than the effect of any of the individual factors on their own" (p. 179) supports the emphasis here on integrated studies investigating the effects of multiple variables on language outcomes.

The following chart (Table I) summarizes the Rutter findings relevant to the present report.

Progress and Performance in the Primary Classroom (Galton and Simon, 1980) reports on part of the British ORACLE study (Observational Research and Classroom Learning Evaluation). This research focused on new forms of primary school classroom organization which were coming into being, and on the relative effectiveness of different forms of organization, in terms of pupil learning. In large part, the study was mounted to explore the criticisms being directed at primary school education that had developed in England as a result of the Plowden Report (1967). The study

TABLE 1

SCHOOL VARIABLES FOUND BY RUTTER[1] TO BE SIGNIFICANTLY ($p < .05$) ASSOCIATED WITH STUDENTS' ACADEMIC PERFORMANCE (A) AND/OR SCHOOL BEHAVIOUR (B)

Variables[2]	Outcomes A	Outcomes B
Academic Emphasis of the School (p. 108)		
Homework observed during 1st year lessons		X
Teachers' setting of homework was checked	X	
Percent of 3rd year class expected to succeed in 'O' level English and math examinations	X	
Children's work displayed on walls	X	
Children's reported use of school library	X	
Teacher Actions in Lessons (p. 114)		
Teacher on "topic"		X
Teacher on 'equipment,' administrative, or disciplinary matters (negative relationship)		X
Percent of 3rd year lessons ending early (negative)	X	X
Disciplinary intervention in 3rd year lessons (negative)		X
Disciplinary intervention in 1st year lessons (negative)		X
Higher proportion of time spent with whole class (rather than with individuals) in 3rd year lessons	X	X
Rewards and Punishments (pp. 120 & 124)		
Group-based (rather than individual teachers') disciplinary standards	X	
Percent of pupils positively named for work		X
Percent of "topic" praise of pupils in lessons		X
Pupil Conditions (p. 126)		
Proportion of children who would consult teachers about personal problems	X	
Number of outings (field trips)	X	
General scale of positive pupil conditions (conveniences such as easy access to library and facilities)	X	
School decorations and care of buildings		X
Teachers report seeing children at any time		X
Number of children seen individually in previous 2 weeks		X
Responsibilities and Participation (p. 130)		
Proportion of children who had been form captain or equiv.	X	X
Pupils caring for own materials and resources		X
Participation in assembly or house meetings	X	X

[1] These data are compiled from tables in Fifteen Thousand Hours (Rutter, et al, 1979)

[2] Each group of variables is followed by a page reference to indicate the table from which the data were summarized.

took into account nearly all the research concerns identified by Bennett's (1976) excellent literature review that appeared in his study of teaching style. Despite ORACLE's richness in data and good design, its findings should be interpreted cautiously. It is a British study and, as will be seen, some of the common patterns of instruction identified may not be common in Toronto, Ontario, or North American primary classrooms. The other difficulty in a study such as this one is that because it is based on existing situations, it does not necessarily include the best or the most desirable instructional practices; rather, it considers only those instructional practices which are commonly found and currently used in a given place at a given time.

The ORACLE researchers found that the typical pupil was "fully involved in co-operating in his task", i.e. working or in one way or another engaged on the task in hand, 75 per cent of the time (Galton and Simon, 1980, pp. 232-233). They found that time-on-task accounted for less than 3% of the variation in the pupils' test scores (p. 188).

Although some teaching of groups and the whole class took place, the dominant mode of interaction between teachers and pupils was individualized on a one-to-one basis. In teachers' interactions with pupils, their questions and statements appeared to be didactic. There was little of the probing type of questioning which encourages inquiry learning. The thought provoking and higher order questions were generally used only when the class was being

taught as a whole, a rare event in the classrooms observed.

The study identifies and assesses the effectiveness of various teaching styles. The two "best" styles based on the pupils' success are characterized as "Infrequent Changers" and "Class Enquirers". The "Infrequent Changers" interact with children for ninety per cent of the time and achieve a high level of individualization. They make occasional and careful changes in classroom organization - between class and individual work - to meet the needs of particular classes. They ask children more questions than other teachers, and more interesting questions. They encourage children to ask for attention and to sort out their own tasks. "Class Enquirers" are highly organized teachers who devote a third of the time to whole class teaching. They are clear and lucid when explaining the work, saving a lot of time for questions and for pupils' statements of ideas. Children then work individually, with the teacher helping and questioning them one-to-one. The majority of their pupils are 'solitary workers' who avoid much personal contact with the teacher or other children, and they are especially good at posing questions.

The remaining four styles listed in order of the pupils' success are characterized as "Group Instructors", "Individual Monitors", "Habitual Changers" and "Rotating Changers". The "Group Instructors" spend 20% of their time, three times as much as others do, with groups of pupils, concentrating more on routine information than discussion, although they provide lots of verbal feedback and use some

open-ended questions. Their pupils mostly work on their own, demanding little from the teacher. The "Individual Monitors" work primarily on a one-to-one basis, usually telling pupils what to do. There is little discussion with the pupils, over half of whom tend to be "intermittent workers" mixing work and social conversation. The "habitual Changers" switch unpredictably from class teaching to individual work, use few open-ended questions, are most likely to participate in "small talk" with the pupils and spend the least time directly on the basics, believing in "topic work". The "Rotating Changers" organize their classrooms in groups, with each group working on different curriculum areas at the same time; the groups switch their curriculum area, changing materials and sometimes pla[illegible] on the teacher's signal. ORACLE finds little to commend [illegible] this style which creates discipline problems that lead to criticism of pupils and which has the poorest levels of pupil success.

The researchers also observed the pupils' learning styles; the proportion of pupils using different learning styles varied among the different teaching styles. The researchers noted that of the 14 teachers whom they were able to observe for both the first and second year, none changed their teaching styles, whereas 70 per cent of the pupils changed their patterns of behavior when they changed classes in their second year in the study. They also commented that although a third of the classrooms were open plan, there were few instances where co-operative teaching was observed.

In looking at pupil behavior and progress the ORACLE researchers concluded that when looking at the effects of pupil sex, pupil type and teaching style together only teaching style had an independent effect on achievement. Neither class size nor pupil type, which was related to time on task, showed an independent effect. Motivation was related to pupil progress only in classes where the less successful teaching styles were used (p. 178).

It is also useful to look at the most important teacher behaviors related to effective teaching. The researchers identified the most successful teachers from each teaching style to see what strategies they did share. The researchers discovered several critical variables which distinguished these teachers. They had above average levels of interaction with the pupils using higher-order interactions including more statements of ideas and open-ended questioning. They encouraged the pupils to work by themselves, ensured that routine activities progressed smoothly and provided lots of task oriented statements and questions as well as regular feedback (p. 199).

Extending Beginning Reading (Southgate et al, 1981) reports a four-year Schools Council Project investigating the development of reading in U.K. junior schools (children aged 7 to 9+). This firmly "school based", fact-finding study involved more than 500 teachers in Teachers' Reading Research Groups, classroom observations and assessments of 750 children in 20 schools, and the methods used to teach them, and an intensive one-year study

of reading instruction and pupils' achievement in 12 schools, with over 1100 pupils, focussing primarily on 140 children with "average reading proficiency". Comparing information collected in the intensive study year on the schools, classes, teachers, and children, the study reaches two main conclusions with clear implications for practice:

> The classes which made most reading progress were those in which the teachers placed the least emphasis on listening to children's oral reading. Furthermore, in these same most successful classes, a greater proportion of time was devoted to children's uninterrupted personal reading and to discussions about the books the children had read.
>
> (p. 319)

While teachers observed in the study worked diligently and hard to improve pupils' reading, different methods met with varying degrees of success. Furthermore, "This high work output of teachers was not always mirrored by concentrated task-orientation in their pupils, the actual time devoted by a proportion of the children to the set reading and writing being extremely small." (p. 317). Thus, while teachers listened to individual pupils read, many other pupils were not working productively and independently at assigned tasks, and the individual reading sessions were themselves too brief to permit adequate diagnosis of problems, assessment beyond literal comprehension, probing of reading strategies used, or substantive discussions of pupils' views, interests, or problems. All teachers in the study tried to promote children's interest in books, usually by reading aloud to their classes:

> The majority of teachers spent between one hour

> and two-and-a-half hours per week on this activity. (It was also interesting to note that children spent more time in school listening to their teachers reading to them than the time they were allowed for their personal reading which the teachers were trying to promote!)
>
> (p. 318)

The study concludes with various recommendations to improve reading programs in junior grades. The recommended "major modifications of existing practice" are (1) a drastic reduction in the amount of reading period time devoted to individual children reading aloud to the teacher for very brief periods each; (2) an increase in the time spent in longer meetings with individual pupils, allowing for adequate diagnosis, instruction, and discussion, even though such meetings might occur less frequently; (3) more provision of time for pupils' individual silent reading of self-selected books; and (4) a radical reduction of the time "in which teachers are acting solely as consultants for individual children on the correct spelling of words" (p. 320). In addition, the study recommends increasing attention to children's "study skills", enabling them to locate and summarize appropriate materials and information for projects in various subject areas. All of these recommendations depend on the availability of "an adequate supply of appropriate books, arranged in such a manner as to help children to locate and select those to suit their needs" (p. 324). In the Southgate findings, there was a deficiency of appropriate fiction and other materials for average and below-average readers at this level.

The Effective Use of Reading (Lunzer and Gardner, et al, 1979), a large-scale Schools Council project

conducted in England from 1973 to 1976, investigated "how average and above-average readers [aged 10-15] actually use reading in school, and what may be done to improve an existing competence" (p. xi). The focus of the research was on the use of reading to learn "across the curriculum", rather than on the teaching of reading in English or special reading classes. The series of studies in this project included extensive classroom observation and surveys of current practice, including the use of reading in homework, experimental work on improving reading through group discussion activities, and research into the nature of reading comprehension and of readability.

It is difficult to summarize the findings of such a wide-ranging project as the Lunzer-Gardner research. The two general findings with the widest implications for practice are (1) "that the reading ability of average and above-average pupils in the 10-15 year age range can be improved" (p. 312), and (2) that classroom work which promotes students' "willingness to reflect", and provides opportunity and encouragement to increase the quality of their reflection is a key consideration in developing students' reading comprehension and their proficiency in using reading to learn (pp. 300-301). In terms of the present report, the following links between educational processes and language outcomes are either established or strongly suggested by the various project studies.

The general pattern of lessons in many secondary classrooms, "where 'teacher informing' is the major means of instruction", tends to restrict the role of student reading

and does little to develop students' skill in reading to learn. Reading in most classes tends to be in "short bursts", looking for particular items of information, and there are few opportunities for "continuous reading" or reflection on what is read. Since, according to Lunzer and Gardner, "individual differences in reading comprehension should be thought of as differences in the willingness and ability to reflect on what is being read" (p. 300), the lack of opportunity for reflection can seriously inhibit the development of students' comprehension. Reflection and comprehension are also inhibited by unreadable textbooks, especially in subjects such as science and social studies. To develop students' ability to learn from reading, they can be taught "to approach the material in the role of interrogators and discussants" rather than as "passive recipients of information" (p. 303), but few teachers and lessons do this. In secondary schools, continuous and reflective reading are more likely to be demanded in homework than in class work, but the students working at home do not have access to professional help and guidance.

Contrary to the researchers' expectations, teachers in the study were generally pessimistic about the use of reading to learn, perhaps because so many students experienced difficulty with it. "However, where the reaction to this has been to limit the role of reading in lesson-time, the very means of effecting improvement have been ignored...we cannot achieve better reading by retreating from print" (p. 135). An essential condition for improving students' reading is that teachers recognize that

reading ability can be improved through effective school use of reading. One important finding of the study is that when teachers are consciously attending to students' reading development, "whatever the nature of the measure or measures considered appropriate, some benefit accrues" (p. 311). Effective reading and study are not simply the byproducts of education; they require direct effort from teachers, who must recognize that improvement is possible. "Promoting effective reading involves more than creating interest and turning pupils loose on resources, as often happens in projects and 'topic work'" (p. 303).

Lunzer and Gardner's research identified two effective approaches to the improvement of secondary school students' reading: group discussion activities in the classroom, and the use of reading laboratories. The first approach is perhaps the more generally useful, because it can be used in any subject, combining reading skill development with the on-going learning of subject matter. In general, group discussions activities provide students with tasks and opportunities to talk and think about what they have read. When students are not given time to talk about their reading - to predict what they will find, to inquire about meanings, and to reflect on its significance - "effective reading is likely to be a casualty" (p. 136). There is a crucial link between reading and discussion, and classroom instruction should provide opportunity for students to make the connection:

> It is through spoken language, discussion, that we come to terms with written language. When the matter is difficult for us, it is only in the process of talking and writing about it that we

> can overcome what is compact or opaque in the printed word.
>
> (p. 192)

In a pilot study of group discussion approaches, teachers observed improvements in the quality of students' reflections on the subject matter and on their ability to think about their reading (pp. 309-310).

A second effective approach to reading improvement was through the use of SRA Reading Laboratories, when they were used according to direction, and in the context of frequent uses of continuous, reflective reading and "study programmes which call for individual and group work" (pp. 306-307). The disadvantages of the laboratories are that they may not deal with the subject matter the teacher wishes to cover, and their effectiveness does seem to depend on a context that few teachers provide in their classrooms, but the evidence in support of the laboratories - when properly used - is substantial.

In summary, the Lunzer-Gardner studies conclude that in order to promote students' effective use of reading across the curriculum, we need (1) reading situations designed to promote reflection; e.g., through availability of readable materials, provision for continuous reading in the classroom, and balancing the demand for "getting information" with genuine student inquiry and discussion of materials read; (2) instruction, guidance, and reading practice to improve the quality of reflection, through such means as group discussion activities and the use of reading laboratories; and (3) the use of methods and materials providing "optimum opportunity for pupils to use reading

purposefully". (pp. 300-301)

STUDIES OF LANGUAGE LEARNERS AND LANGUAGE PROCESSES

It is clear that before we can definitively answer the pressing and practical question, "What can we do to improve children's language development? we must have clear answers to such questions as "What is language development? How does children's language development really occur? What are the skills involved in language use (speaking, listening, reading, and writing)?" Much of the usefulness of the foregoing observational studies rests on improved theory and research into these basic questions. The following studies provide important empirical evidence on the nature of language development and on the processes by which such development occurs.

Donald Graves and his colleagues at the University of New Hampshire have recently completed a two-year case study of the development of primary school children's composing and writing processes. Although the final reports of the research are not yet available, a number of preliminary findings were published in educational journals during the course of the project, and Graves has spoken about the study at numerous Ontario conferences in the past three years. The research involved detailed observation of eight children from Grade 1 through 2, and eight children from Grade 3 through 4 in five different classrooms, to investigate how the children changed in the writing process and the sequence in which various composing, spelling, and motor behaviors, and perceptions about writing emerged.

Unlike most of the research cited earlier, Graves'

study involved active participation of the researchers with the children. That is, although the children were observed in school, following programs determined by their teachers, the presence of the researchers and recording equipment, the emphasis on writing, and the student interviews and other data-gathering techniques no doubt had an influence on the pupils, teachers, environment, and the development itself, though the study was essentially descriptive rather than experimental.

In an earlier Ford Foundation study of writing in U.S. schools, Graves (1978) had concluded that despite the importance of writing to personal, language, and cognitive development, it was definitely not a high priority in the schools, especially when compared to reading and mathematics: "In fact, writing is seldom encouraged and sometimes not permitted, from grade one through the university" (p. 5). Even the "back to the basics" movement "vaults over writing to the skills of penmanship, vocabulary, spelling, and usage", leaving little time for actual writing (p. 10). He also noted, however, that the situation was far from hopeless. Following investigations in several schools where writing was given high priority, Graves concluded that

> Barriers to good writing are not as high or insurmountable as they seem. Students who write poorly can improve quickly with skilled, personal attention that concentrates on what they know and can tell others. Good teaching <u>does</u> produce good writing.
>
> (p. 5)

As an example of good teaching, Graves described the "process-conference approach" in which teachers emphasize

discussions with students while they are developing drafts of their writing, rather than making extensive corrections on finished products. In general, the conferences proceed from a concern with topic development and information gathering in the early stages to technical considerations as the student prepares final drafts. Imperfect student compositions are treated not as "wrong", but as "unfinished" (p. 22).

Graves' general conclusion in the Ford Foundation study was that children's writing can and will improve if it is permitted and encouraged. This appears to have been supported by his two-year case study as well. In a preliminary report of his findings at an Ottawa conference of the Canadian Council of Teachers of English, Graves (1979) asserts that even first graders "have a natural urge to express, to make marks, to 'play' with writing, to experiment boldly with new ways to put messages on paper", and that if we delay their writing until they have been taught spelling, penmanship, and other technical skills, "we lose out on a stage of development when children can make some of the most rapid and delightful growth in writing of their entire lives" (p. 2). The conditions necessary for such development appear to include encouraging and interested audiences, such as teachers, who will attend to the messages rather than just to skill deficiencies, and the opportunity to write frequently, often on self-selected topics. Given such encouragement, opportunity, and occasional help directed to individual needs, the children in Graves' study demonstrated a remarkable capacity to meet

and overcome increasingly complex problems both in composing and transcribing, and to do so with relatively little formal instruction on "basic skills". At least with these beginning writers, there appears to be a natural development from un-self-conscious playfulness in writing to a greater awareness of conventions, rules, and audience considerations, and a self-imposed seriousness in dealing with them.

Although Graves' findings have rather clear implications for teaching, he points out (1981) that "we have never actually studied the process of teaching writing" and that such studies are definitely needed. "The detailed observation of children is the beginning of understanding teaching, since teacher effects are seen more clearly in the context of child data" (p. 202), but detailed classroom observation of teachers is also necessary. Echoing the Southgate conclusion that individual teacher-student contacts must be made more productive, Graves cites the need for studies of teachers' behavior in conferences with students about their writing (p. 203).

Learning Through Interaction: The Study of Language Development (Wells, et al, 1981) is a first report of another major observational study of children's language development, recently completed by the Centre for the Study of Language and Communication at the University of Bristol (U.K.). Focusing primarily on preschool children's language use and their interaction with parents, and on teacher-child interactions in the primary school, the British research promises a useful picture of the nature of language

development, how it is influenced by home and school environments, and how it relates to cognitive development and school achievement.

One finding from this first report is that in early childhood "the exchange of conversational meaning is essentially a cooperative enterprise" involving language, situations, and the intentions of the participants (p. 72). The implication is that teachers dealing with young children must be prepared to engage with them in collaborative negotiations of meaning, if understanding, learning, and language development are to occur. Since conversation is a critical factor in the language development of children, and "learning to communicate is a collaborative affair", the classroom dominated by teacher talk and pupil listening will be counter-productive, at least in the early primary grades:

> Right up to the early years of schooling and beyond, the adult is the more skilled participant, with a responsibility for helping the child to develop and extend his communicative skills, at first pre-verbally, then verbally, and later in written language. But at each stage, the child also has a contribution to make, stemming from his own interests and directed by his own purposes. The sort of interaction that will be most beneficial for his development, therefore, is that which gives due weight to the contribution of <u>both</u> parties, and emphasizes mutuality and reciprocity in the meanings that are constructed and negotiated through talk.
>
> (p. 115)

A second important finding of the Bristol study is that children often comprehend differently than adults do (p. 154), and these differences in understanding can lead to difficulties in school:

> ...the relation between understanding an utterance and understanding its context remains a central problem area for the child during his early years

> at school. School as a context of learning not only provides new opportunities for developing knowledge and language; it can also be the occasion for mutual lack of comprehension between teachers and children.
>
> pp. 155-156
>
> ...the way children make sense of the context around them is crucial to an understanding of their performance in school.
>
> (p. 183)

Based on a preliminary comparison of child-adult talk in homes and schools, the Bristol researchers conclude, tentatively, that for most children, "from whatever social background, there is little in the nature of the interactional demands which will be made of them in school that they will not already have become familiar with at home, at the level of conversational structure" (p. 237). However, at the level of comprehension and understanding there do seem to be important differences between home and school, and these differences appear to have a marked effect on school performance.

Language used in the home is normally clear to the child because its context and purpose are understood and contribute to the meaning. When parents talk of "going out," for example, the child's understanding of the situation contributes to understanding of the talk. Similarly, partly because the child initiates much of the talk at home, the purpose of the language is usually understood. In school, however, most of the language is initiated by adults, for purposes that may not be clear to the child, and the language often deals with meanings completely unrelated to the child's present context. The

child in school is asked to master a kind of language use and thinking that relies for meaning not on the immediate situation but on the formal aspects of the problem or the text one is dealing with. That is, although "normal" language and problem solving for children are almost always embedded in situations that help the child make sense of and understand them, a key function of the school is to help children deal with language and problems that do not relate directly to their own immediate experience.

In their discussion of "Language, literacy and education", the Bristol investigators note the role that reading and writing play in the development of such de-contextualized thinking and learning. Although reading itself involves decontextualized language, there is great variation in the extent to which children can easily relate what they read to their own experience. There are differences in the intellectual skills required to understand a phone message or a simple story and those required for an account of a complex historical incident or scientific experiment, and "the intellectual skills that are facilitated [by literacy]...are restricted to those that are closely related to the uses to which reading and writing are put" (p. 246). The mastery of de-contextualized language and thought, then, is aided by reading, and by the uses of reading in the school.

> Clearly, literacy is not an all-or-nothing ability. There is a basic level of literacy that almost all pupils achieve, which may not go much beyond the ability to read material which is already familiar from other sources, and to write about particular first-hand experience...For the effects of literacy to generalize across the full range of an individual's intellectual

> activities...a much higher level of literacy is required, which is only likely to result from working with unfamiliar as well as with familiar material and from the attempt to organize and reorganize that material to meet the demands of particular problems and tasks.
>
> (p. 253)

This observation of discontinuity in levels of literacy is also supported by Lunzer and Gardner (1979), who note that "there is a real problem in progressing from learning to read to reading to learn" (p. 33):

> To learn by reading, a student needs to penetrate beyond the verbal forms of the text to the underlying ideas. He must compare these ideas both with what he already knows and with each other, so as to pick out what is essential and what is new, and thereby alter his previous conception in line with this novel information.
>
> (Lunzer and Gardner, p. 38)

The Bristol study identifies reading as an early instance of decontextualized thinking, and literacy as a condition of its development. The first step of recognizing language as a separate, functional structure was found in the Bristol study to be of great importance to beginning reading:

> When we investigated the antecedents of the early progress in reading made by a subsample of the Bristol children, we found that the best single predictor of attainment in literacy after two years of schooling was the extent of the children's own understanding of the purposes and mechanics of literacy at the time when they started school. This, in turn, was strongly associated with the interest in literacy that their parents had shared with them in the preceding years.
>
> (Wells, 1981, p. 263)

Children's Minds, Margaret Donaldson's (1978) study of children's cognitive development and school performance, reaches conclusions similar to those in the

Bristol study. According to Donaldson, a key reason for children's failure in school learning is their difficulty in mastering "disembedded thought":

> you cannot master any formal system unless you have learned to take at least some steps beyond the bounds of human sense, and...the problem of helping children to begin to do this in the early stages of their schooling...has not been properly recognized and is not usually tackled in any adequate way.
>
> (p. 82)

Donaldson notes that "the normal child comes to school with well-established skills as a thinker. But his thinking is directed outward on to the real, meaningful, shifting, distracting world" (p. 88); it is thinking largely controlled by and directed toward events in the immediate environment. What the school must do is help the child gradually to take charge of his own mind: "He must become able to direct his own thought processes in a thoughtful manner. He must become able not just to talk but to choose what he will say, not just to interpret but to weigh possible interpretations" (p. 89). The means to these ends involve helping children not just to think and talk but also to become more aware of the thinking and talking that they do. The Bristol study noted the importance of "children's own understanding of the purposes and mechanics of literacy", of language as a symbol system that can be manipulated for various purposes. Similarly, Donaldson stresses that "the first step is the step of conceptualizing language - becoming aware of it as a separate structure, freeing it from its embeddedness in events". When children arrive at school possessing this awareness, "They come with

an enormous initial advantage" (p. 89) to becoming literate.

SELECTED STUDIES RELATING TO INDIVIDUAL VARIABLES

There are numerous studies which, though not as large and comprehensive as those which have been presented, add to the work which has been outlined.

There are vast numbers of experimental studies testing particular teaching methods and materials in reading and language, but such research often fails to consider either contextual factors or learning processes, and its generalizability is questionable. To extend Donald Graves' (1980) observation: "Research about writing [and language] must be suspect when it ignores context or process. Unless researchers describe in detail the full context of data gathering and the processes of learning and teaching, the data cannot be exported from room to room." Because of its narrow focus and limited applicability, such research has not been reviewed here. The studies cited below, however, deal with various factors relevant to the present review and appear to be applicable to Toronto schools.

Kirkwood and Wolfe (1980) in an Ontario study found that many text books were too difficult for the students in the grade levels for which they were intended. The authors also concluded that different readability formulas (with different weightings of the various factors) were required both for different subjects and different grade levels.

Fillion (1979), studied the amount and kind of writing done by students in several Toronto-area schools. His conclusions, similar to those of Graves (1978), and

supported by subsequent writing surveys, were that students do relatively little writing in and for school, and that very little of the writing that is done involves students intellectually.

A recent article from Education (Document of the Week, 1981) refers to the most recent publication in the ORACLE series (Simon and Willcocks, 1981), which provides data on many topics that were generated through secondary analysis and supplementary studies. The article reports that project work, though commonly used, in English primary schools, was rarely assessed. A study of self-fulfilling prophecy showed teachers' nominations of bright pupils did not lead to a self-fulfilling prophecy, but nomination of low performing pupils was associated with a performance reduced below expected levels based on pre-test scores obtained by the researchers. A study of the way that pupils from different social classes were treated revealed no evidence that pupils from working class homes got less help from teachers or were less well treated in schools than their middle class school mates.

In the United States, a review of research on teacher behavior and student achievement (Rosenshine, 1976) states cautious optimism about studies of teaching low SES students which suggest that "direct instruction" might be a useful strategy. He uses the term to describe situations where the teacher is the dominant leader, leaves little choice to the pupils, uses systematically organized materials that proceed in small steps yet maintains a warm encouraging environment.

A recently published report by Kathryn Hu-Pei Au and Jana M. Mason (1981) contains a helpful literature review as well as reporting on an interesting study. The literature review notes that field based correlation studies showed academic achievement related to academic engaged time and to group rather than individual instruction (Rosenshine and Berliner, 1978). This latter finding, the authors suggest, is probably because other children grow inattentive if left unsupervised (Stallings et al, 1977). The authors provide further support for their use of academic engaged time as an appropriate measure of achievement in their study of each teacher's direct instruction. They studied the relationship between two different ways of managing interaction and learning to read. The two teachers who were studied used interaction in their lessons very differently which resulted in two different participation structures with the pupils and two different levels of achievement. The students were low SES and of a minority group. While the authors use the data to argue for a social organization that provides "a balance of rights" among students and teacher in speaking and turn taking, they admit that it could be argued that the more successful social organization worked better because it was more culturally congruent for the minority students.

Brookover et al (1978) studied school climate and school achievement following up their initial study of a random sample of Michigan elementary schools with observations in four of them to supplement their statistical results. There were variations among the climates of

classrooms within a school, and there were clearly distinct differences in the climates of the schools themselves. Achievement was measured at the Grade 4 level based on the percentage of pupils mastering 19 reading and 40 mathematics objectives. School climate made a large difference to achievement and if it were considered as the primary variable, SES and racial composition of the school accounted for very little of the variance in achievement. SES and racial composition were related to school climate, but school climate explained more of the differences in achievement than race or SES. The school climate variable labelled "sense of academic futility" was by far the most important and strongest component of that measure. Observational data showed that teachers in higher achieving low SES schools, as well as a high achieving low SES school with a high proportion of black and Chicano students, had teachers who spent a larger proportion of class time in instruction and who also displayed a greater concern for and commitment to their students' achievement. In contrast, in the lower achieving low SES schools a larger proportion of the students tended to be "written off". In the high achieving schools fewer students were identified as having difficulty and were only so identified to give them extra instruction to aid their achievement. These findings lend support to those of the Rutter study (1979), cited earlier.

Leinhardt et al (1981), in a study of the achievement of learning-disabled elementary school pupils and classroom processes in reading instruction, concluded that the most reasonable thing to do to improve reading was

to have the pupils spend more time on it. This would involve not only a rearrangement of time allotments but would require a focussing on the individual pupils so that they increased the "amount of time...[they] spent reading (preferably reading silently)". This conclusion was related to the number of non-reading activities some pupils engaged in even when they were supposed to be reading and to the fact that pupils did not always understand what they were supposed to be doing.

Among American names associated with classroom process research are Brophy and Good. In a recent literature review, Brophy (1979) discusses the effect of teacher behaviors and points to the lack of theory accompanying this empirical research. Brophy discusses such factors as the apparent need to tailor teaching style to the age and ability level of students, the need for material to be at (not beyond) the student's level of difficulty, and for the pace of instruction to be brisk but in small steps. Brophy also refers to the variable of teacher expectations, including Good's work. Good (1981), in an excellent literature review on the topic, describes the ways in which teachers' behaviors are different for the students whom they see as slower than the other students; behaviors such as seating the slow students away from the teacher, calling on them less frequently, not waiting as long for their answers, praising them less, and demanding less work and effort from them. Good's findings are consistent with those of Rutter (1979) and Galton and Simon (1980), indicating that teachers who were successful with lower ability students saw their

students in a positive manner, and challenged them at a reasonable level of difficulty.

In recent years statistical techniques have been developed for taking the data from various studies with common themes and reducing their various measures of this common theme to a common metric. Called meta-analysis, this new form of literature review provides a technique for integrating many somewhat different studies. A collection of recent meta-analyses in volume 4 #1 of Evaluation in Education have some themes relevant to this report. Haertel et al (1980) find that the classroom environment as perceived by pupils affects achievement, performance and self-concept. Fredrick (1980) in his analysis of instructional time found it related to achievement in a modest but persistent way. He suggests that inadequacies in the measures of actual time-on-task for each student accounts in part for the relationships being so modest. Smith (1980) looked at the effect of teacher expectations on pupil performance, including very different types of studies. She found that expectations affect teacher judgements of pupils' abilities but not of their interest, motivation or appeal. Expectations had a larger relationship to achievement than to intelligence, and a larger "effect" on reading and language arts than on math achievement. However, she concludes that causality cannot be assumed, because the analysis cannot sort out whether the teacher is responding to certain pupils or whether the pupils are responding to the teachers' expectations.

In an analysis of teachers' questioning, Rousseau

and Redfield (1980) examined studies of teachers' use of higher order versus lower order questioning. They concluded that, "...predominant use of higher cognitive questions promotes student achievement". These gains were found in studies where teachers had been trained in questioning skills. Ide et al (1980) studied peer influence on achievement and after introducing controls for other variables such as SES found a modest significant relationship between peer influence and cognitive outcomes, and a somewhat higher but still modest relationship with educational aspirations. Furthermore, their analyses suggest that peer influence is a complex factor and using only simple definitions of peer influence leads to inflated estimates of its relationship to achievement.

SUMMARY COMMENTS

The significant school processes which emerge in this report are not as clearly defined or influential as the review may make them appear. One example is academic engaged time (time on task) which seems to be important in the American studies but not in ORACLE. Using this variable as an illustration, two vital points can be made. First, the differences which individual variables can make may be genuine but modest, and their effect may be influenced by interaction with other variables. Second, instructional practices are unlikely to be the same in Britain, Canada and the United States. However, although much of the research was done in differing settings, there is a slowly emerging consensus on some key theoretical positions.

The Bullock Report, A Language for Life (1975) was a comprehensive review, sponsored by England's Department of Education and Science, of theory, research, and practice related to language teaching and learning from early childhood to adulthood. The study, with its numerous specific recommendations for teaching practice and school policies, has had a marked effect on educational thinking throughout the English-speaking world and was very influential in Ontario's 1977 intermediate and senior division English Curriculum Guidelines. Specifically rejecting the notion that "reading and the use of English can be improved in any simple way...in a few neat administrative strokes...[or by] the adoption of one set of

teaching methods to the exclusion of another", the report concludes that "there is nothing to equal in importance the quality and achievement of the individual teacher" (p. 513). In general, the post-1975 research cited in the present report gives force and practical meaning to this conclusion, and to the key theoretical positions cited in Bullock:

> The evidence is that one acquires language as a pattern, not as an inert collection of units added serially, a mechanical accumulation of abstracted parts of speech...We believe that language competence grows incrementally, through an interaction of writing, talk, reading, and experience, the body of resulting work forming an organic whole.
>
> (p. 7)

> ...the kind of approach which we believe will produce the language development we regard as essential...involves creating situations in which, to satisfy his own purposes, a child encounters the need to use more elaborate forms and is thus motivated to extend the complexity of language available to him. It also involves the teacher in charting the process by careful observation of the developing language skills.
>
> (p. 67)

The reviewed research also tends to support the positions of such influential educational theorists as James Britton (1970), Douglas Barnes (1976), Nancy Martin (1976), and Frank Smith (1978) that in the achievement of language development and basic literacy we must rely more heavily than we usually do on the active, cooperative participation of the child. In the development of higher levels of literacy and the ability to use language to learn, direct instruction must be combined with more opportunities for students' active involvement than are provided by much current teaching practices. As the research by Wells (1981), Donaldson (1978), and Lunzer and Gardner (1979)

suggest, the reading process goes well beyond recognizing words on a page; a high level of literacy involves the ability to work in the abstract conceptually. Many children come to school from cognitive environments firmly rooted in a concrete reality, especially those who come from socially, or economically limited environments. Success for the pupil will eventually depend on an ability to manipulate new, novel, abstract concepts through the use of language, which is consistent with Downing's (1979) concept of "cognitive clarity" which postulates that to read, a child must understand the communicative purposes of written language, not just its linguistic features. This would seem to be achieved by teachers who work with groups or classes - challenging them with ideas and questions yet ensuring that each individual knows how to continue working on the material independently.

In sum, the research findings suggest that the teaching styles and classroom situations which result in pupils becoming actively engaged in the use of language (reading, writing, talking, listening) for purposes that they see as meaningful will lead to the greatest amount of language development. But it is quite possible that different strategies and methods will achieve these results for different teachers in different situations. For example, the ORACLE study (Galton and Simon, 1980) appears to favor more whole-class teaching, primarily because it was in these situations that most teachers provided more thought-provoking questions and high-level interaction with students. But the study also acknowledges that its best

teachers were those who provided such stimulation in individual encounters with students. Similarly, the Southgate (1981) recommendations stress the quality of teacher-student interaction, even if improved quality results in fewer contacts per pupil.

It may well be that different teaching styles or strategies are appropriate for pupil success in various subject areas such as reading and mathematics. Differences may also be present in the learning styles of boys and girls under certain circumstances as well as in the learning styles of able and less able students.

When students know what they are doing, and when the instruction is planned, students will spend more time on appropriate subject related tasks, and will derive greater benefits from them. The successful teacher will use thought provoking questions during the instruction and will challenge the students at their level of ability but may have to use techniques of "direct instruction" (i.e. teaching that is structured and direct, with a teacher-centred focus and little choice of activity for the pupil but with lots of success and positive reinforcement) particularly for the less able student in the lower grades (Peterson, 1979).

This selective view of recent major areas of research into school processes related to language outcomes supports the contention of the Bullock Report and other theorists that there is no one best way to improve language and literacy, but that schools and school variables can and do make a difference. It may well be that the most

important school variables have yet to be identified, but the pattern of variables emerging in current research are consistent and promising.

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